

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 20 February 2001 (20.02.01)	
International application No. PCT/SE00/01167	Applicant's or agent's file reference PCT 51493 kg
International filing date (day/month/year) 06 June 2000 (06.06.00)	Priority date (day/month/year) 10 June 1999 (10.06.99)
Applicant SJÖBÄCK, Conny	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
10 January 2001 (10.01.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

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The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer R. E. Stoffel
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38



PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

To:

BERGLUND, Stefan
Bjerkéns Patentbyrå KB
Östermalmsgatan 58
S-114 50 Stockholm
SUÈDE

Date of mailing (day/month/year) 03 January 2002 (03.01.02)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference PCT 51493 kg	
International application No. PCT/SE00/01167	International filing date (day/month/year) 06 June 2000 (06.06.00)

1. The following indications appeared on record concerning: <input checked="" type="checkbox"/> the applicant <input type="checkbox"/> the inventor <input type="checkbox"/> the agent <input type="checkbox"/> the common representative		
Name and Address DAIMLER CHRYSLER AG Epplestrasse 225 D-70567 Stuttgart Germany	State of Nationality DE	State of Residence DE
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning: <input type="checkbox"/> the person <input checked="" type="checkbox"/> the name <input checked="" type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence		
Name and Address BOMBARDIER TRANSPORTATION GMBH Saatwinkler Damm 43 D-13627 Berlin Germany	State of Nationality DE	State of Residence DE
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to: <input checked="" type="checkbox"/> the receiving Office <input type="checkbox"/> the designated Offices concerned <input type="checkbox"/> the International Searching Authority <input checked="" type="checkbox"/> the elected Offices concerned <input checked="" type="checkbox"/> the International Preliminary Examining Authority <input type="checkbox"/> other:		

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Athina NICKITAS-ETIENNE Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT 51493 kg	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/SE00/01167	International filing date (day month year) 06.06.2000	Priority date (day month year) 10.06.1999
International Patent Classification (IPC) or national classification and IPC B61D 17/04		
Applicant Daimler Chrysler AG et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 10.01.2001	Date of completion of this report 08.05.2001
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 J2 STOCKHOLM Facsimile No. 08-667 72 88 Form PCT/IPEA/409 (cover sheet) (January 1998)	Authorized officer Hans Nordström/EK Telephone No. 08-782 25 00

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE00/01167

I. Basis of the report

1. With regard to the elements of the international application:**

- ☒ the international application as originally filed
- ☐ the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement) under article 19
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the drawings:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language English which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(h)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet/fig. _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).**

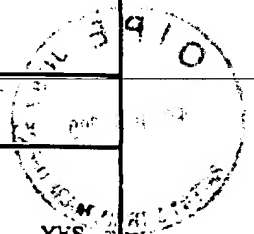
* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE00/01167



V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-14</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-14</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-14</u>	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

SE 439912 B (SCHWEIZERISCHE ALUMINIUM AG),
8 July 1985 (08.07.85)

NO 175047 B (ALUSUISSE-LONZA SERVICE AG),
16 May 1994 (16.05.94)

FR 846659 A (H.B. LINDSAY), 21 Sept 1939
(21.09.39)

None of the cited documents reveals the car body for a rail vehicle or the method for manufacturing of a beam for a car body of a vehicle described in the claims.

Therefore the invention according to the claims is novel. The invention according to the claims is also considered to involve inventive step and to be industrially applicable.

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No. **PCT/ SE 00 / 0 1 1 6 7**International Filing Date **0 6 -06- 2000**Name of receiving Office and PCT International Application
The Swedish Patent OfficeApplicant's or agent's file reference
(if desired) (12 characters maximum) **PCT 51493 kg/ak**

20/8E

Box No. I TITLE OF INVENTION	
A CAR BODY AND A METHOD FOR PRODUCING A BEAM	
Box No. II APPLICANT	
Name and address: (Family name followed by given name: for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)	
DAIMLER CHRYSLER AG Epplestrasse 225 DE-70567 Stuttgart Tyskland	<input type="checkbox"/> This person is also inventor. Telephone No. Facsimile No. Teleprinter No.
State (that is, country) of nationality: Germany	State (that is, country) of residence: Germany
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input checked="" type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)	
Name and address: (Family name followed by given name: for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)	
SJÖBÄCK, Conny Skeppsgossevägen 9 SE-393 59 Kalmar Sweden	This person is: <input type="checkbox"/> applicant only <input checked="" type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)
State (that is, country) of nationality: Sweden	State (that is, country) of residence: Sweden
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
<input type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet.	
Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE	
The person identified below is hereby has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: <input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative	
Name and address: (Family name followed by given name: for a legal entity, full official designation. The address must include postal code and name of country.)	
BJERKENS PATENTBYRÅ KB, represented by BERGLUND, Stefan; ISRAELSSON, Stefan; BJERKÉN, Håkan or OLSSON, Jan Östermalmsgatan 58 SE-114 50 Stockholm, SWEDEN	Telephone No. 08 - 662 08 70 Facsimile No. 08 - 663 02 60 Teleprinter No.
<input type="checkbox"/> Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.	

Box No. V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes: at least one must be marked):

Regional Patent

- ☒ AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ EA Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ EP European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ OA OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | |
|--|--|
| <input checked="" type="checkbox"/> AE United Arab Emirates | <input checked="" type="checkbox"/> LR Liberia |
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> LS Lesotho |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LT Lithuania |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LU Luxembourg |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> MA Morocco |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MD Republic of Moldova |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MG Madagascar |
| <input checked="" type="checkbox"/> BG Bulgaria | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BR Brazil | <input checked="" type="checkbox"/> MN Mongolia |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MW Malawi |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> MX Mexico |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> NO Norway |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> NZ New Zealand |
| <input checked="" type="checkbox"/> CR Costa Rica | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> CZ Czech Republic and utility model | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> DE Germany and utility model | <input checked="" type="checkbox"/> RU Russian Federation |
| <input checked="" type="checkbox"/> DK Denmark and utility model | <input checked="" type="checkbox"/> SD Sudan |
| <input checked="" type="checkbox"/> DM Dominica | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> EE Estonia and utility model | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SI Slovenia |
| <input checked="" type="checkbox"/> FI Finland and utility model | <input checked="" type="checkbox"/> SK Slovakia and utility model |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> GD Grenada | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> TZ United Republic of Tanzania |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> IN India | <input checked="" type="checkbox"/> UZ Uzbekistan |
| <input checked="" type="checkbox"/> IS Iceland | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> ZA South Africa |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> ZW Zimbabwe |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | |
| <input checked="" type="checkbox"/> KR Republic of Korea | |
| <input checked="" type="checkbox"/> KZ Kazakhstan | |
| <input checked="" type="checkbox"/> LC Saint Lucia | |
| <input checked="" type="checkbox"/> LK Sri Lanka | |

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

- ☐
☐

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application:* regional Office	international application: receiving Office
item (1) 10/06/99	9902172-7	Sweden		
item (2)				
item (3)				

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): (1)

* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):	Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):
ISA / SE	Date (day/month/year): 10 June 1999 Number: SE99/00730 Country (or regional Office): Sweden

RC/SE

Box No. VIII CHECK LIST: LANGUAGE OF FILING

This international application contains the following number of sheets:	This international application is accompanied by the item(s) marked below:
request : 3 ✓	1. <input checked="" type="checkbox"/> fee calculation sheet
description (excluding sequence listing part) : 7 ✓	2. <input type="checkbox"/> separate signed power of attorney
claims : 2 ✓	3. <input type="checkbox"/> copy of general power of attorney; reference number, if any:
abstract : 1 ✓	4. <input type="checkbox"/> statement explaining lack of signature
drawings : 2 ✓	5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s):
sequence listing part of description : _____	6. <input type="checkbox"/> translation of international application into (language):
Total number of sheets : 15 ✓	7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material
	8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form
	9. <input checked="" type="checkbox"/> other (specify): ITS-report

deleted
KOLSE

Figure of the drawings which should accompany the abstract:	Language of filing of the international application:
(Fig 2)	Swedish

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

Stockholm, 2 June, 2000

Bjerkens Patentbyrå KB

Stefan Berglund

For receiving Office use only		2. Drawings: <input checked="" type="checkbox"/> received: <input type="checkbox"/> not received:
1. Date of actual receipt of the purported international application:	0 6 -06- 2000	
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority (if two or more are competent): ISA / SE	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.	

For International Bureau use only	
Date of receipt of the record copy by the International Bureau:	14 JULY 2000 14.07.00

FIG 1

FIG 2

11

2/2

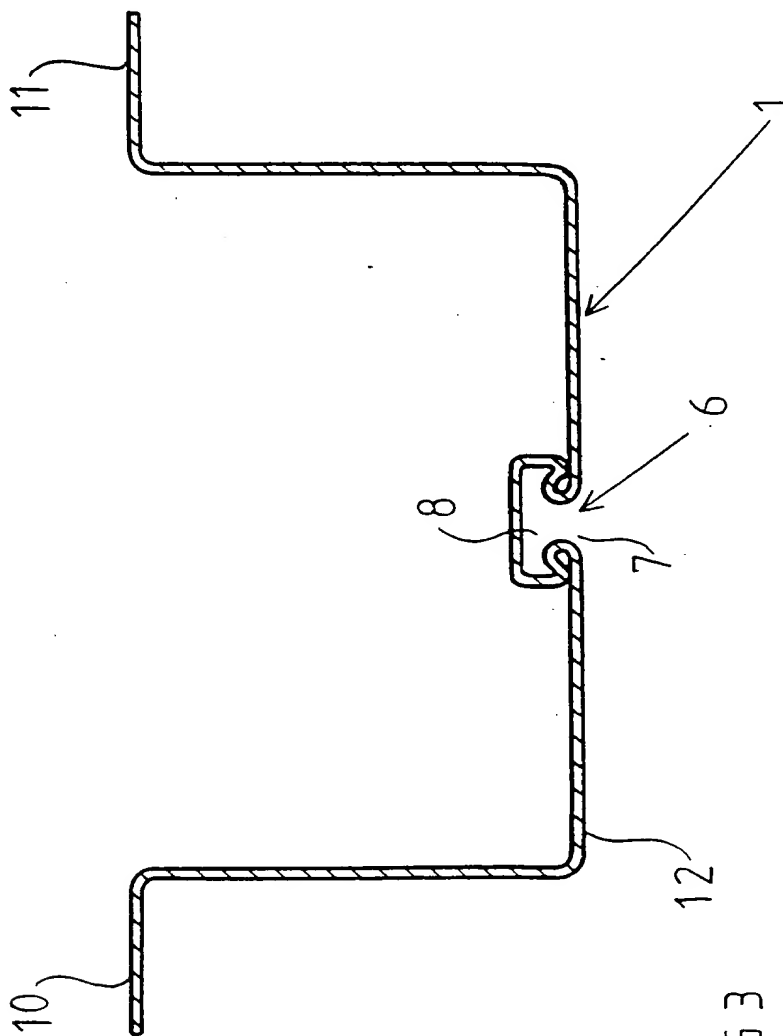


FIG 3

5

VAGNKORG OCH FÖRFARANDE FÖR FRAMSTÄLLNING AV EN REGEL

UPPFINNINGENS BAKGRUND OCH TIDIGARE TEKNIK

10

Den föreliggande uppfinningen avser en vagnkorg för ett rälsfordon. I synnerhet avser den en vagnkorg som innefattar ett antal regler inrättade att bära ett eller flera väggelement. Uppfinningen avser dessutom ett förfarande för framställning av en regel till en fordonsvagnkorg.

15

Begreppet väggelement ska betraktas i vid mening och kan innefatta underrede, tak och sidoväggar hos fordonet. I synnerhet innefattar de plåtar som tar stöd mot reglarna.

20

Begreppet vagnkorg skall ha en vid betydelse och innefatta alla typer av skalkonstruktioner inrättade att omge och definiera inandömet hos ett fordon.

25

Med regler avses alla de förstyvande och bärande balkar eller stag som anordnas för att bära vagnkorgens underrede, väggar och tak och som dessutom kan utnyttjas som stöd åt ytterligare komponenter i vagnkorgen.

30

Uppfinningen är särskilt fördelaktig för vagnkorgar för tågvagnar och skall därför i exemplifierande syfte beskrivas i ett sådant sammanhang. I synnerhet är uppfinningen tillämplig på tågvagnar som innefattar vagnkorgar gjorda av stål eller aluminium och innefattande ett ramverk av regler och ett yttre plåthölje.

35

Hos sådana vagnkorgar är ytterligare komponenter eller system, såsom invändig utrustning, kanaler, kablage, underredesutrust-

ning etc., fästade mot reglarna via fästelement som är fästade mot reglarna medelst svets-, nit- eller skruvförband. Anordnandet av sådana förband är ett arbetsintensivt och kostnadskrävande moment vid iordningställandet av sådana vagnkorgar. Svetsfogar ger dessutom upphov till ojämnheter hos de släta ytorna hos exempelvis väggelement och komponenter som fästs vid en regel. Sådana ojämnheter kan bestå i bucklor orsakade av värmen från svetsfogen och/eller formförändringar hos en eller flera regler och det eller de väggelement som är fästade vid dessa. En reduktion av mängden sådana förband önskas sålunda även av rent estetiska skäl. Ojämnheter orsakade av svetsförband resulterar även i oexakta toleranser hos exempelvis väggar, så att problemen med passningen mellan olika delar, till exempel väggar och underrede, uppstår.

15

SAMMANFATTNING AV UPPFINNINGEN

Ett syfte med den föreliggande uppfinningen är att tillhandahålla en vagnkorg som har en sådan konstruktion att den medger enkel och tillförlitlig montering av olika komponenter, såsom inredning, kanaler, kablage, underredesutrustning etc., vid en eller flera regler i vagnkorgen. Enskilda regler skall vara så utformade att svets-, nit- och skruvförband kan ersättas med sådana ändamålsenliga förband för fixering av nämnda komponenter vid reglarna att åverkan på reglarna, väggelementen och de ytterligare komponenterna undviks i möjligaste mån vid monteringen. Reglarna skall vidare ha en form som medger en helt eller nära helt automatiserad, industriell framställning av dessa till låg kostnad.

Dessa syften uppnås medelst en vagnkorg av det inledningsvis definierade slaget, vilken är kännetecknad av att åtminstone en av nämnda regler innefattar ett väsentligen i regelns längdriktning sig sträckande fästorgan för ingrepp med åtminstone en del av en eller flera komponenter som skall ta stöd mot regeln. Som en del av nämnda komponenter inbegrips även mellanliggande fästelement, till exempel fästlinjaler, för standardiserade profilskenesystem, exempelvis C-skenesystem. En ytterligare fördel

som uppnås tack vare uppfinningen är att sådana fästelement enkelt kan positioneras praktiskt taget var som helst utmed fästorganet och även enkelt tas bort vid behov utan att lämna några betydande spår efter sig.

5

Fästorganet definierar företrädesvis en urtagning eller utbuktning och kan åstadkommas vid framställningen av regeln genom exempelvis strängpressning eller valsning av regeln. Tack vare ingreppet mellan urtagningen/utbuktningen och nämnda del av komponenten reduceras behovet av ytterligare förband mellan regeln och komponenten ifråga. Enligt ett föredraget utförande har urtagningen eller utbuktningen och nämnda del av komponenten eller komponenterna en komplementär form, sådan att en formlåsning mellan urtagningen/utbuktningen och nämnda del uppnås vid nämnda ingrepp. Behovet av ytterligare förband mellan regeln och komponenten ifråga är därigenom helt eller nära helt eliminerat. Formlåsningen innefattar till exempel att komponenten eller nämnda del av denna, då den är i ingrepp med regeln, nyper fast mot regeln, till exempel genom inverkan av en mutter eller en snäppmekanism.

20

Enligt ytterligare ett föredraget utförande är fästorganet en integrerad del av regeln. Förband för fixering av fästorganet vid regeln undviks därigenom och en estetiskt tilltalande, skarvfri regel utnyttjas.

25

Enligt ytterligare ett föredraget utförande innefattar regeln en plåt med väsentligen konstant vägg tjocklek och är urtagningen definierad genom plåtens form. På så vis kan fästorganet i form av urtagningen/utbuktningen åstadkommas genom exempelvis valsning av plåten och, följaktligen, till en relativt låg kostnad. Framställningen behöver inte ske genom mekanisk bearbetning (fräsning eller liknande) av regeln för åstadkommande av urtagningen/utbuktningen, och följaktligen undviks onödigt materialspill.

30

35

Ett ytterligare syfte med uppfinningen är att tillhandahålla ett förfarande för framställning av en regel till en fordonsvagnkorg,

varvid förfarandet skall vara i hög grad lämpat för automatisk, industriell framställning och resulterar i en regel med en sådan konstruktion att behovet av svets-, nit- och skruvförband etc. för fixering av ytterligare komponenter vid regeln kan reduceras väsentligt. Detta syfte uppnås enligt uppfinningen medelst ett förfarande av det inledningsvis definierade slaget, kännetecknat av att ett fästorgan som löper väsentligen i regelns längdriktning anordnas i regeln. Regeln, såsom klar för användning är långsträckt och fästorganet kan enkelt åstadkommas i samband med att regeln strängpressas eller valsas till sin slutliga form. Regeln med fästorganet i form av urtagningen/utbuktningen kan definiera en standardiserad profilskena och fungera som ingreppsorgan relativt ytterligare komponenter, såsom inredning, kablage, underredesutrustning etc. i vagnkorgen. Framför allt kan fästelement för standardiserade profilskenesystem användas för att ingripa med fästorganet. Dessa fästelement bildar då del av nämnda komponenter och kan enkelt flyttas från en position till en annan och helt avlägsnas för flyttning eller avlägsnande av nämnda komponenter.

Enligt ett föredraget utförande innefattar regeln en plåt och anordnas fästorganet genom valsning av plåten. Kostnadskrävande mekanisk bearbetning, såsom fräsning, för åstadkommande av fästorganet undviks därigenom. Praktiskt taget inget materialspill behöver förekomma.

Enligt ytterligare ett föredraget utförande har fästorganet, då det definierar en urtagning, ett väsentligen T-format tvärsnitt. Genom en motsvarande utformning av en del av en komponent som skall fixeras vid regeln kan ett mycket stadigt ingrepp mellan regeln och komponenten uppnås. Urtagningens mynning mot regelns långsida kan göras relativt smal och anordnandet av urtagningen behöver inte medföra någon försvagning av regeln. Ett fästelement eller en del av en komponent som ska fästas vid regeln kan ha en fot som förs in i T-spåret och ett mutterorgan för fixering av foten i spåret på i sig känt sätt.

Ytterligare särdrag och fördelar med den föreliggande uppfinningen kommer att framgå av de bifogade patentkraven och den detaljerade beskrivningen.

5 KORT BESKRIVNING AV RITNINGARNA

Här ska ett utförande av uppfinningen beskrivas i exemplifierande syfte med hänvisning till de bifogade ritningarna, på vilka

Fig. 1 är en schematisk tvärsnittsvy av en vagnkorg enligt uppfinningen,

Fig. 2 är en sidovy enligt I-I i fig. 1 av ett parti av vagnkorgen, och

Fig. 3 är en tvärsnittsvy av en regel enligt II-II i fig. 2.

15 DETALJERAD BESKRIVNING AV ETT UTFÖRANDE

Fig. 1 är ett tvärsnitt av en vagnkorg för ett fordon, i detta fall ett rälsfordon, närmare bestämt en tågagn. Vagnkorgen innefattar ett antal regler 1 som bildar ett stöd för väggelement i form av plåtar 3-5 som omger och definierar vagnkorgens innandöme. Nämda plåtar bildar fordonets underrede 3, sidoväggar 4, och tak 5.

Varje regel 1 innefattar en plåt med väsentligen konstant tjocklek. Denna plåt är formad så att den definierar en urtagning 6 riktad från eller, som i detta fall, mot vagnkorgens innandöme. Urtagningen 6 är inrättad att ingripa med åtminstone en del av en eller flera komponenter (icke visade) och därigenom stödja dessa. Sådana komponenter kan exempelvis innefatta inredning, såsom bord, stolar, hyllor eller kanaler eller liknande för mottagande av kablage m.m.

Urtagningen 6 sträcker sig med ett väsentligen konstant tvärsnitt i regelns 1 längdriktning och utmed en betydande del, företrädesvis hela, dennas längd och uppvisar en öppning 7 som har mindre bredd än det utrymme 8 som urtagningen 6 definierar invändigt öppningen 7. Urtagningen 6 är åstadkommen genom

valsning av den plåt som skall definiera regeln 1. Regeln 1 är företrädesvis gjord av stål eller något annat för ändamålet lämpligt material, företrädesvis aluminium.

- 5 Det är även möjligt att framställa regeln 1 utifrån ett mer formbart material än stål. Den eftersträlvade urtagningen 6 kan åstadkommas genom exempelvis strängpressning av ett sådant formbart material, till exempel aluminium. En sådan strängpressad profil kan dessutom ges en varierande väggdjocklek för tillgodoseende
10 av krav på hållfasthet, design etc. i det enskilda konstruktionsfallet.

- I fallet med regler 1 av valsad plåt har reglarna 1 företrädesvis den tvärsnittsform som framgår av fig. 3. Regelns tvärsnitt är väsentligen C-format. Formen kan även beskrivas som liknande en
15 öppen låda, vars ändar 10, 11 är utvikta och väsentligen parallella med ett frontparti 12 hos lådan. Den T-formade urtagningen 6 är anordnad i frontpartiet 12. Ändarna 10, 11 är företrädesvis fästade vid underredeselement 3, sidoväggelement 4 och/eller
20 takelement 5 hos den vagnkorg i vilken reglarna 1 är anordnade. En sådan form gynnar en effektiv inbördes fixering av elementen 3-5 och reglarna 1. Andra tänkbara tvärsnittsformer inkluderar Z-profiler, fyrkantsprofiler etc., vilka kan förses med den uppfinningsenliga urtagningen 6 och fungera som regler.

- 25 Reglarna 1 sträcker sig företrädesvis i väsentligen vertikal riktning och är anordnade att stödja och bilda del av vagnkorgens sidoväggar, men kan också vara anordnade väsentligen horisontellt i syfte att stödja och bilda del av vagnkorgens sidoväggar, underrede och tak.
30

- Montering av ytterligare komponenter vid reglarna 1 sker genom införande av åtminstone en del av en sådan ytterligare komponent i urtagningen 6. Nämda del av en sådan komponent kan
35 vara ett standardiserat fästelement för ett standardiserat profilskenesystem, i detta fall ett C-skenesystem, och innefatta en fot ägnad att föras in i urtagningen och ett låsorgan, såsom en mut-

ter, för fixering av foten i urtagningen på i sig känt sätt. Genom
montering av ytterligare komponenter, såsom de som nämnts
ovan, undviks sålunda svetsning, nitning, bultning etc. som inne-
bär någon väsentlig deformation av skenorna 1. Någon typ av
5 snäppförband för fixering av nämnda delar av de ytterligare kom-
ponenterna vid reglarna vore en alternativ lösning.

En utbuktning kan vara anordnad på motsvarande sätt och ha en
motsvarande funktion som urtagningen 6. Uppfinningen innefattar
10 därför även ett sådant utförande, fastän detta inte är visat i nå-
gon figur. Urtagningar 6 föredras emellertid.

Uppfinningen är fördelaktig genom att den möjliggör en enkel och
kostnadseffektiv produktion av regler 1 som därvid erhåller en
15 form som möjliggör fixering av ytterligare komponenter vid reg-
larna 1 genom enkel inbördes låsning medelst exempelvis fäst-
element för standardiserade profilskenesystem. På så vis kan
behovet av svets-, nit- och/eller skruvförband i vagnkorgen vä-
sentligt reduceras och en bättre ytfinish hos väggelement, regler
20 och ytterligare, därvid fästade komponenter uppnås. Vidare möj-
liggör uppfinningen ett minimerat behov av skärande bearbetning
av regler och gör det möjligt att fästa ytterligare komponenter vid
reglarna 1 redan innan dessa har rests och fästats vid väggele-
menten 3-5.

25 Det skall inses att ett flertal varianter av uppfinningen kommer att
vara uppenbara för en fackman inom området utan att uppfin-
ningens ram frångås. Uppfinningen skall vara begränsad genom
vad som framgår av patentkraven, med stöd av beskrivningen
30 och ritningarna.

Patentkrav

1. Vagnkorg för ett rälsfordon innefattande ett flertal regler (1) inrättade att bära ett eller flera väggelement (3-5), kännetecknad av att åtminstone en av nämnda regler (1) innefattar ett väsentligen i regelns längdriktning sig sträckande fästorgan (6) för ingrepp med åtminstone en del av en eller flera komponenter som skall ta stöd mot regeln (1).
5
2. Vagnkorg enligt krav 1, kännetecknad av att fästorganet (6) och nämnda del av komponenten eller komponenterna har en komplementär form, sådan att en formlåsning mellan regeln (1) och komponenten uppnås vid nämnda ingrepp.
10
3. Vagnkorg enligt krav 1 eller 2, kännetecknad av att fästorganet (6) är en integrerad del av regeln (1).
15
4. Vagnkorg enligt krav 1, kännetecknad av att fästorganet (6) definierar en i regelns längdriktning sig sträckande urtagning.
20
5. Vagnkorg enligt krav 4, kännetecknad av att urtagningen (6) har ett väsentligen T-format tvärsnitt.
6. Vagnkorg enligt något av kraven 1-5, kännetecknad av att regeln (1) innefattar en plåt med väsentligen konstant tjocklek, och att fästorganet (6) är definierat genom plåtens form.
25
7. Vagnkorg enligt något av kraven 1-6, kännetecknad av att regeln (1) är gjord av stål eller aluminium.
30
8. Vagnkorg enligt något av kraven 1-7, kännetecknad av att nämnda komponent eller komponenter innefattar inredning, kanaler, kablage och/eller underredesutrustning i fordonet.
9. Vagnkorg enligt något av kraven 1-8, kännetecknad av att regeln (1) är anordnad att stödja fordonets underrede (3), sidovägg (4) eller tak (5).
35

10. Förfarande för framställning av en regel (1) till en fordonsvagnkorg, kännetecknat av att ett fästorgan (6) som löper väsentligen i regelns (1) längdriktning anordnas i regeln.

5

11. Förfarande enligt krav 10, kännetecknat av att regeln (1) innefattar en plåt och att fästorganet (6) anordnas genom valsning av plåten.

10

12. Förfarande enligt krav 10 eller 11, kännetecknat av att fästorganet (6) definierar en urtagning som sträcker sig i regelns (1) längdriktning.

15

13. Förfarande enligt något av kraven 10-12, kännetecknat av att urtagningen (6) har ett väsentligen T-format tvärsnitt.

20

14. Förfarande enligt något av kraven 10-13, kännetecknat av att fordonet är ett rälsfordon, i synnerhet en järnvägsvagn, och att fästorganet (6) dimensioneras för mottagning och fixering vid denna av en komponent, i synnerhet inredning, kanaler, kablage och/eller underredesutrustning i fordonet.

Sammandrag

En vagnkorg för ett rälsfordon, innefattande ett antal regler (1) inrättade att bära ett eller flera väggelement (3-5). Åtminstone en av nämnda regler (1) innefattar ett väsentligen i regelns (1) längdriktning sig sträckande fästorgan (6) för ingrepp med åtminstone en del av en eller flera komponenter som skall ta stöd mot regeln (1).

10 (Fig. 2)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference PCT 51493 kg	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/SE00/01167	International filing date (day month year) 06.06.2000	Priority date (day month year) 10.06.1999
International Patent Classification (IPC) or national classification and IPC7 B61D 17/04		
Applicant Daimler Chrysler AG et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 10.01.2001	Date of completion of this report 08.05.2001
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5088 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer Hans Nordström/EK Telephone No. 08-782 25 00

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE00/01167

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement) under article 19
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the drawings:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language English which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE00/01167

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	<u>1-14</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-14</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-14</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

SE 439912 B (SCHWEIZERISCHE ALUMINIUM AG),
8 July 1985 (08.07.85)

NO 175047 B (ALUSUISSE-LONZA SERVICE AG),
16 May 1994 (16.05.94)

FR 846659 A (H.B. LINDSAY), 21 Sept 1939
(21.09.39)

None of the cited documents reveals the car body for a rail vehicle or the method for manufacturing of a beam for a car body of a vehicle described in the claims.

Therefore the invention according to the claims is novel. The invention according to the claims is also considered to involve inventive step and to be industrially applicable.

PATENT COOPERATION TREATY

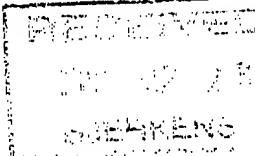
PCT

From the INTERNATIONAL BUREAU

INFORMATION CONCERNING ELECTED
OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

To:

BERGLUND, Stefan
Bjerkéns Patentbyrå KB
Östermalmsgatan 58
S-114 50 Stockholm
SUÈDE

Date of mailing (day/month/year)

20 February 2001 (20.02.01)

Applicant's or agent's file reference

PCT 51493 kg

IMPORTANT INFORMATION

International application No.

PCT/SE00/01167

International filing date (day/month/year)

06 June 2000 (06.06.00)

Priority date (day/month/year)

10 June 1999 (10.06.99)

Applicant

DAIMLER CHRYSLER AG et al

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

AP : GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

National : AU, BG, CA, CN, CZ, DE, IL, JP, KP, KR, MN, NO, NZ, PL, RO, RU, SE, SK, US

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

OA : BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

National : AE, AL, AM, AT, AZ, BA, BB, BR, BY, CH, CR, CU, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IN, IS, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MW, MX, PT, SD, SG, SI, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW

3. The applicant is reminded that he must enter the "national phase" before the expiration of 30 months from the priority date before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed until 31 months from the priority date for all States designated for the purposes of obtaining a European patent.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer:

R. E. Stoffel

Telephone No. (41-22) 338.83.38

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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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International Bureau

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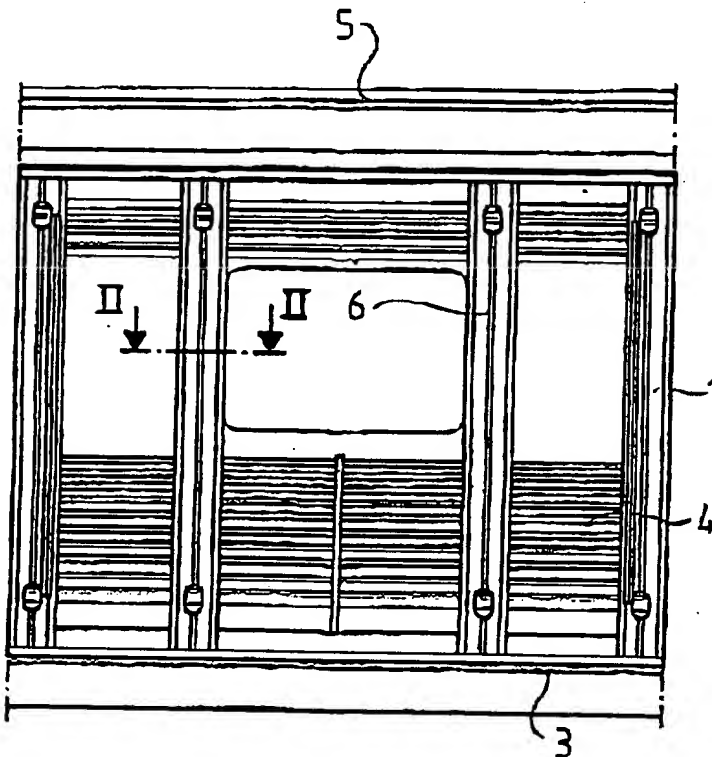
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(10) International Publication Number
WO 00/76821 A1

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9902172-7 10 June 1999 (10.06.1999) SE
- (71) Applicant (for all designated States except US): DAIMLER CHRYSLER AG [DE/DE]; Epplestrasse, 225, D-70567 Stuttgart (DE).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): SJÖBÄCK, Conny [SE/SE]; Skeppsgossvägen 9, S-393 59 Kalmar (SE).
- (74) Agents: BERGLUND, Stefan et al.; Björkens Patentbyrå KB, Östermalmsgatan 58, S-114 50 Stockholm (SE).
- (81) Designated States (*national*): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: A CAR BODY AND A METHOD FOR PRODUCING A BEAM



(57) Abstract: A car body for a rail vehicle including a plurality of beams (1) arranged to carry one or more wall elements (2-5). At least one of said beams (1) includes an attaching member (6), extending substantially in the longitudinal direction of the beam, for engagement with at least a part of one or more components intended to be supported by the beam (1).

WO 00/76821 A1

WO 00/76821 A1**Published:**

— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01167

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B61D 17/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B61D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SE 439912 B (SCHWEIZERISCHE ALUMINIUM AG), 8 July 1985 (08.07.85)	1-14
A	NO 175047 B (ALUSUISSE-LONZA SERVICE AG), 16 May 1994 (16.05.94)	1-14
A	FR 846659 A (H.B. LINDSAY), 21 Sept 1939 (21.09.39)	1-14

☐ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

- * Special categories of cited documents
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed
- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

5 A car body and a method for producing a beam

THE BACKGROUND OF THE INVENTION AND PRIOR ART

10 The present invention refers to a car body for a rail vehicle. In particular, it refers to a car body including a number of beams arranged to carry one or more wall elements. Furthermore, the invention refers to a method for manufacturing of a beam to the car body of a vehicle.

15 The term wall elements should be considered in a wide sense and may include a bogie wagon, a roof, and side walls of the vehicle. In particular, they include sheets which are supported by beams.

20 The term car body should be seen in a wide meaning and includes all types of shell constructions arranged to surround and define the interior of a vehicle.

25 The term beam concerns all the re-inforcing and supporting beams or braces which are arranged to carry the bogie wagon, the walls, and the roof of the car body and which, in addition, can be utilized as a support for further components in the car body.

30 The invention is particularly advantageous for car bodies for train wagons, and will therefore for the purpose of exemplifying be described in such a context. In particular, the invention is applicable to train wagons, which include car bodies made of
35 steel or aluminum and which include a framework of beams and an outer sheet casing.

Further component or systems in such car bodies, such as interior equipment, channels, cabling, bogie wagon equipment, etc., are attached to the beams via attaching elements, which are attached to the beams by welded, riveted, or screwed joints. The arrangement of such joints is a labour-intensive and costly factor for the accomplishment of such car bodies. Furthermore, welded joints cause irregularities in the even surfaces of, for instance, the wall elements and components attached to a beam. Such irregularities can be constituted of buckles caused by the heat from the welded joint and/or shape changes of one or more beams and the wall element/s attached thereto. Thus, a reduction of the number of such joints is desired also for aesthetic reasons. Moreover, irregularities caused by welded joints result in inexact tolerances of the walls, for instance, so that problems with the fitting between different parts, for instance walls and bogie wagon, occur.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a car body, which has such a design that it allows an easy and reliable mounting of different components, such as interiors, channels, cabling, bogie wagon equipment etc. at one or more beams in the car body. Individual beams shall be so designed that welded, riveted, and screwed joints can be replaced by such joints that are well suited for their purpose to fix said components to the beams, and so that damage to the beams, the wall elements and the further components is avoided in the best possible way during the mounting. Furthermore, the beams should have a design allowing a totally or almost totally automatized, industrial manufacturing of those to a low cost.

These objects are achieved by a car body of the initially defined kind which is characterized in that at least one of said beams includes an attaching member extending substantially in the

longitudinal direction of the beam for engagement with at least a part of one or more components intended to be supported by the beam. As a part of said components, also intermediate attaching elements are included, for instance attaching rulers, for standardized profile rail systems, such as C-rail systems. A further benefit achieved thanks to the invention is that such attaching elements easily can be positioned practically anywhere along the attaching member and also easily removed if required without leaving any considerable traces.

The attaching member defines preferably a recess or a bulge and can be accomplished during manufacturing of the beam by, for instance, extrusion or rolling of the beam. Thanks to the engagement between the recess/bulge and said part of the component, the requirement of further joints between the beam and the component in question is reduced. According to a preferred embodiment, the recess or the bulge and said part of the component or components have such a complementary shape that a form locking is achieved between the recess/bulge and said part at said engagement. The need for further joints between the beam and the component in question is therefore totally or almost totally eliminated. The form locking includes, for instance, that the component or said part of it, when being in engagement with the beam, clamps to the beam, for instance by effect of a nut or a snap mechanism.

According to a further preferred embodiment, the attaching member is an integrated part of the beam. Joints for fixing the attaching member to the beam are therefore not needed, and an aesthetically attractive beam, free from splicing, is utilized.

According to a further preferred embodiment, the beam includes a sheet with a substantially constant thickness, and the recess is defined by the shape of the sheet. In this way, the attaching member in the form of the recess/bulge can be accomplished by, for instance, rolling of the sheet, and accordingly at a relatively

low cost. The manufacturing of the beam does not need to be done by mechanical tooling (milling or the like) for the accomplishment of the recess/bulge, and accordingly unnecessary losses of material are avoided.

5

A further object of the invention is to provide a method for manufacturing of a beam for a car body of a vehicle, which method to a great extent should be suited for automatic, industrial manufacturing and results in a beam with such a design that the need for welded, riveted, and screwed joints, etc. for fixing further components to the beam can be considerably reduced. This object is achieved according to the invention by a method of the initially defined kind, characterized in that an attaching member, running substantially in the longitudinal direction of the beam, is arranged in the beam. The beam is elongated when it is ready for use, and the attaching member can easily be accomplished in connection with the extrusion or rolling of the beam to its final shape. The beam with the attaching member in the form of the recess/bulge can define a standardized profile rail and work as an engaging member relative to further components, such as interiors, cabling, bogie wagon equipment, etc. in the car body. Attaching elements for standardized profile rail systems can in the first place be used for engagement with the attaching member. These attaching elements then form a part of said components and can easily be moved from a position to another and be completely removed for moving or removal of said components.

According to a preferred embodiment, the beam includes a sheet and the attaching member is accomplished by rolling of the sheet. Expensive mechanical tooling, such as milling, for accomplishment of the attaching member is thereby avoided. Practically no losses of material occur.

According to a further preferred embodiment, the attaching member, when it defines a recess, has a substantially T-shaped

cross-section. By a corresponding design of a part of a component to be fixed to the beam, a very firm engagement between the beam and the component can be achieved. The orifice of the recess towards the long side of the beam can be made relatively narrow, and the arrangement of the recess does not need to entail any weakening of the beam. An attaching element or a part of a component to be attached to the beam, may have a foot member, which is led into the T-groove and a nut member for fixing the foot member in the groove, which fixing is known per se.

Further features and advantages of the present invention will be seen in the appended claims and the detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment of the invention will here be described for the purpose of exemplifying with reference to the attached drawings, in which

- Fig. 1 is a schematical cross-sectional view of a car body according to the invention,
Fig. 2 is a side-view according to I-I in Fig. 1 of a section of the car body, and
Fig. 3 is a cross-sectional view of a beam according to II-II in Fig. 2.

DETAILED DESCRIPTION OF AN EMBODIMENT

Fig. 1 discloses a cross-section of a car body for a vehicle, in this case a rail vehicle, namely a train wagon. The car body includes a number of beams 1, which form a support for wall elements in the form of sheets 3-5, which surround and define an inner space of the car body. Said sheets form the bogie wagon 3, the side walls 4, and the roof 5 of the vehicle.

Each beam 1 includes a sheet with a substantially constant thickness. The sheet is formed so that it defines a recess 6 turned away from or, as in this case, towards the inner space of the car body. The recess 6 is arranged to engage at least one part of one or more components (not shown), and thereby support them. Such components may, for instance, include interiors, such as tables, chairs, shelves, or channels, or the like, for receiving cabling etc.

- 5 The recess 6 extends with a substantially constant cross-section in the longitudinal direction of the beam 1 and along a considerable part, preferably the whole, of its length and discloses an opening 7 which has a smaller width than the space 8 defined by the recess 6 inside the opening 7. The recess 6 is accomplished by rolling of the sheet which shall define the beam 1. The beam 15
1 1 is preferably made of steel or another for the purpose suitable material, preferably aluminum.

- It is also possible to manufacture the beam 1 from a more workable material than steel. The desired recess 6 can be accomplished by, for instance, extrusion of such a workable material, such as aluminum. Furthermore, such an extruded profile can be given a varying wall thickness to meet the requirements for strength, design, etc. in the specific case of construction.

- 25 In the case with beams 1 of rolled sheet, the beams 1 have preferably the cross-sectional shape as can be seen in Fig. 3. The cross-section of the beam is substantially C-shaped. The shape can also be described as similar to an open box, the ends 30
3 10, 11, of which are deflected and substantially parallel with a front section 12 of the box. The T-shaped recess 6 is arranged in the front section 12. The ends 10, 11 are preferably attached to bogie wagon element 3, side wall element 4, and/or roof element 5 of the car body, in which the beams 1 are arranged.
35 Such a shape promotes an effective mutual fixing of the elements 3-5 and the beams 1. Other possible cross-sectional

shapes include Z-profiles, quadangular profiles, etc., which can be provided with the recess 6 according to the invention and work as beams.

5 The beams 1 extend preferably in a substantially vertical direction and are arranged to support and form a part of the side walls of the car body, but can also be arranged substantially horizontal in order to support and form a part of the side walls, bogie wagon and roof of the car body.

10

Mounting of further components to the beams 1 is done by leading at least a part of such a further component into the recess 6. Said part of such a component may be a standardized attaching element for a standardized profile system, in this case
15 a C-trail system, and include a foot member intended to be led into the recess, and a locking member, such as a nut, for fixing the foot member in the recess, which fixing is known per se. By mounting of further components, such as the ones mentioned above, welding, riveting, screwing, etc. involving any essential
20 deformation of the rails 1 are avoided. Some type of snap connection for fixing said parts of the further components to the beams could be an alternative solution.

25 A bulge may be arranged in a corresponding way and have a function corresponding to the one of the recess 6. The invention therefore includes also such an accomplishment, although that is not shown in any figure. However, the recesses 6 are preferred.

30 The invention is advantageous since it allows an easy and cost-effective production of beams 1, which beams obtain a shape allowing fixing further components to the beams 1 by a simple, mutual locking by means of, for instance, means of attachment for standardized profile rail systems. In such a manner, the requirement of welded, riveted, and/or screwed joints in the car
35 body can be considerably reduced, and a better surface finish of

5 wall elements, beams, and further thereto attached components can be obtained. Furthermore, the invention minimizes the need of cutting tooling of beams and makes it possible to attach further components to the beams 1 already before they have been raised and attached to the wall elements 3-5.

10 It should be comprehended that a plurality of variations of the invention will be obvious to a person skilled within this field without leaving the scope of the invention. The invention shall be limited by what is disclosed in the claims with support of the description and the drawings.

CLAIMS

1. A car body for a rail vehicle, including a plurality of beams (1) arranged to carry one or more wall elements (3-5), characterized in that at least one of said beams (1) includes an attaching member (6), extending substantially in the longitudinal direction of the beam, for engagement with at least a part of one or more components intended to be supported by the beam (1).
2. A car body according to claim 1, characterized in that the attaching member (6) and said part of the component or components has such a complementary shape that a form locking is achieved between the beam (1) and the component at said engagement.
3. A car body according to claim 1 or 2, characterized in that the attaching member (6) is an integrated part of the beam (1).
4. A car body according to claim 1, characterized in that the attaching member (6) defines a recess, extending in the longitudinal direction of the beam.
5. A car body according to claim 4, characterized in that the recess (6) has a substantially T-shaped cross-section.
6. A car body according to any one of claims 1-5, characterized in that the beam (1) includes a sheet with a substantially constant thickness, and that the attaching member (6) is defined by the shape of the sheet.
7. A car body according to any one of claims 1-6, characterized in that the beam (1) is made of steel or aluminum.
8. A car body according to any one of claims 1-7, characterized in that said component or components include interiors, channels, cabling, and/or bogie wagon equipment in the vehicle.

9. A car body according to any one of claims 1-8, characterized in that the beam (1) is arranged to support the bogie wagon (3), the side-wall (4) or the roof (5) of the vehicle.

5

10. A method for manufacturing of a beam (1) for a car body of a vehicle, characterized in that an attaching member (6), which runs substantially in the longitudinal direction of the beam (1), is arranged in the beam.

10

11. A method according to claim 10, characterized in that the beam (1) includes a sheet and that the attaching member (6) is accomplished by rolling of the sheet.

15

12. A method according to claim 10 or 11, characterized in that the attaching member (6) defines a recess which extends in the longitudinal direction of the beam (1).

20

13. A method according to any one of claims 10-12 characterized in that the recess (6) has a substantially T-shaped cross-section.

25

14. A method according to any one of the claims 10-13, characterized in that the vehicle is a rail vehicle, in particular a railway wagon, and that the attaching member (6) is dimensioned for receiving a component and for fixing it thereto, in particular interiors, channels, cabling, and/or bogie wagon equipment in the vehicle.

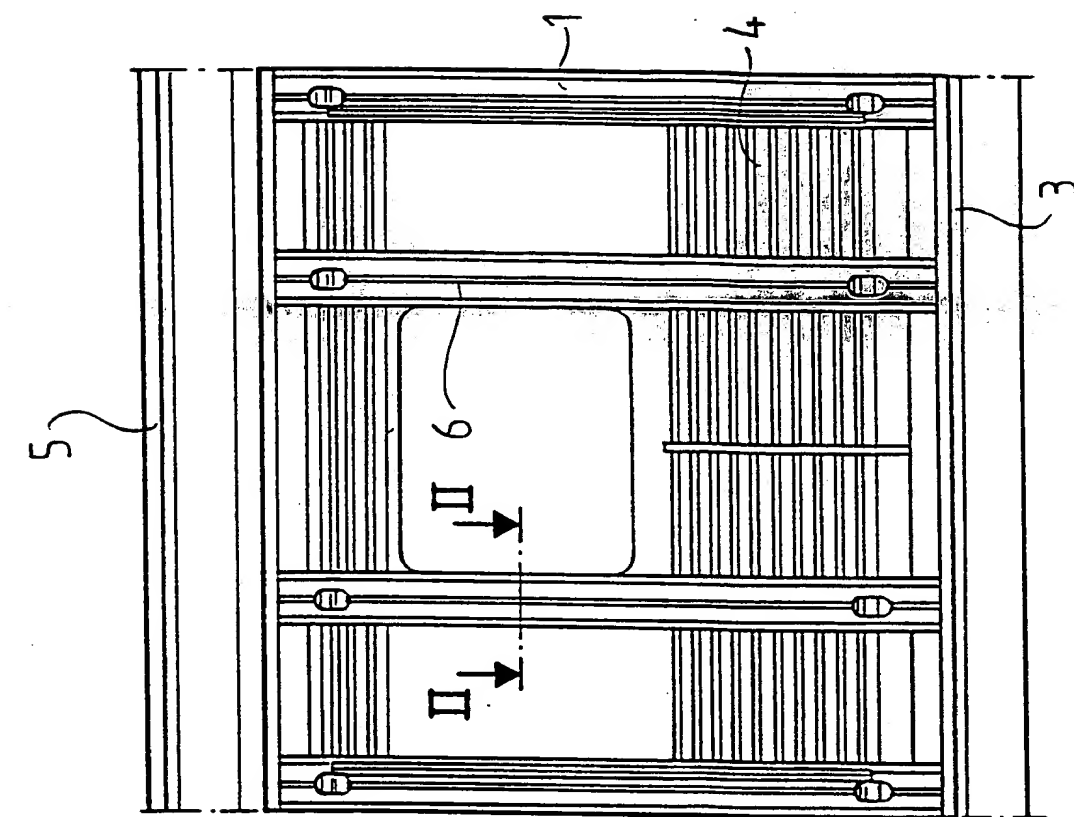


FIG 1

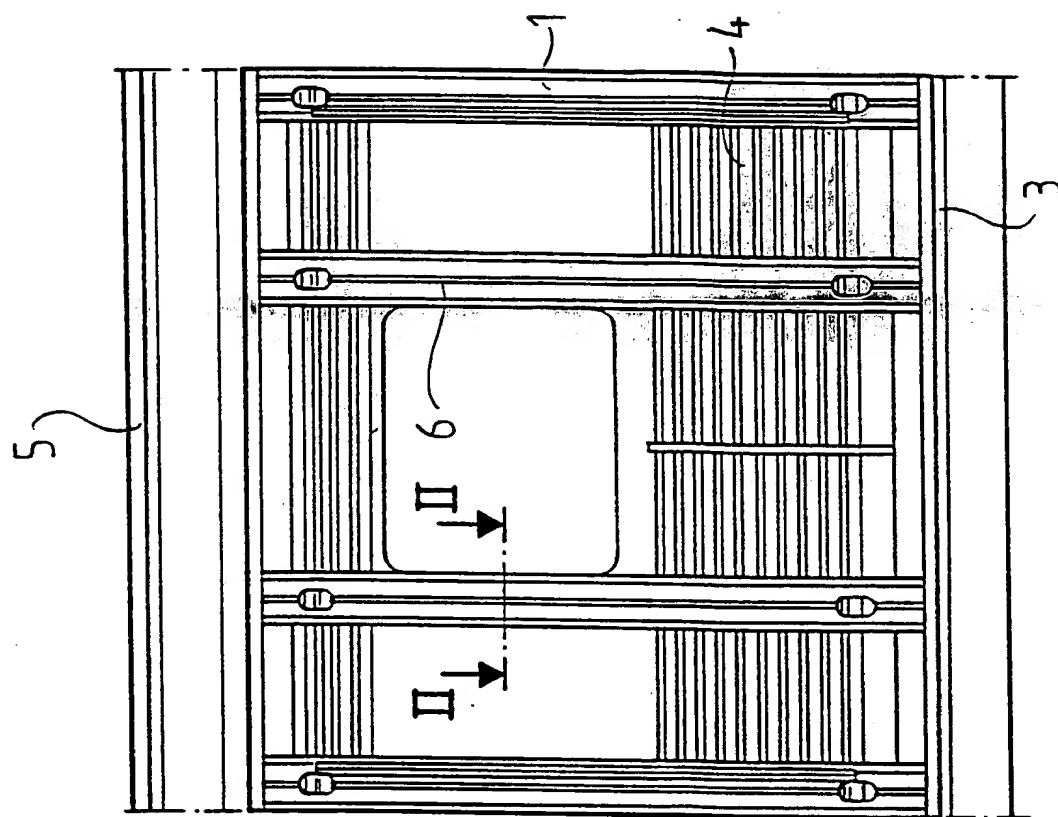


FIG 2

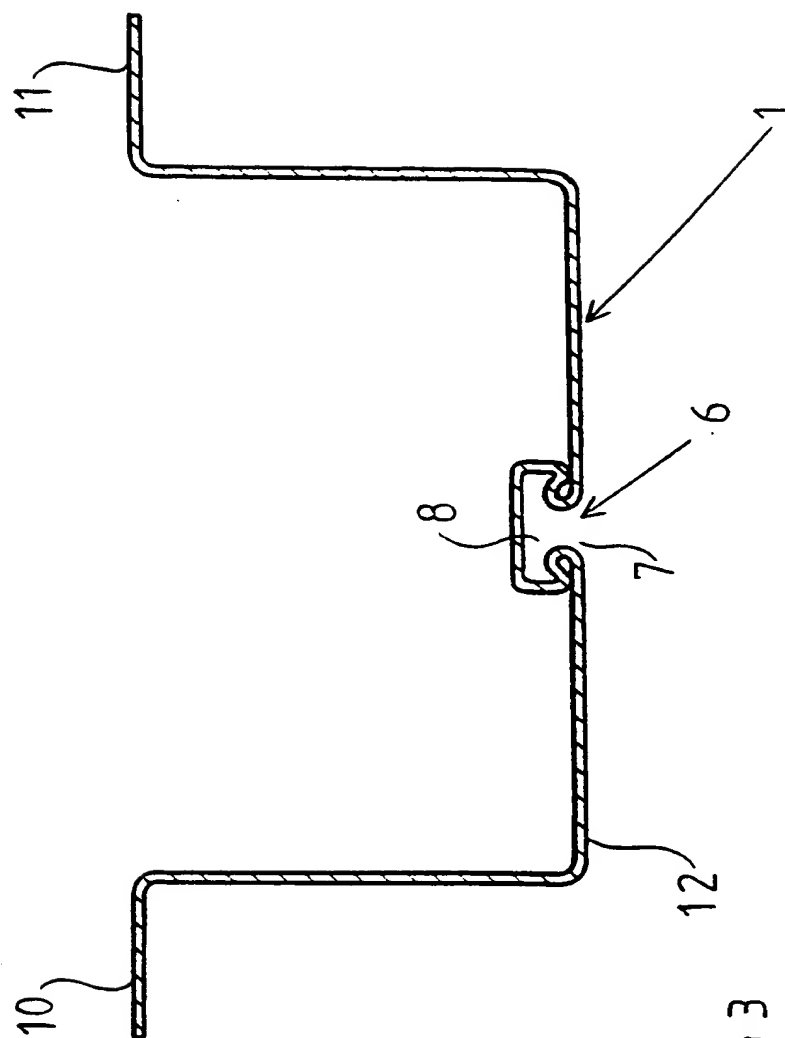


FIG 3